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* The Function Keys
* For The Atari Computers
* 600XL/800XL & 65XE/130XE
* Also; Deluxe ICX-85 Keypad
*
* Copyright @1987
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********** Preface **********

With all the models of Atari 8-bit computers made, there is one that had some very unique features, the 1200XL. The function keys on the 1200XL were on the top, along with Start, Select, Option, etc., labeled F1 to F4. Even though Atari made some minor changes to the Operating System (O.S.) between the 1200XL and the other XL/XE's, they did NOT remove the code to interpret the function keys! When doing the keyboard test, of the built in SELF - TESTS (type - BYE - from Basic), you will actually see the layout of the 1200XL's keyboard! The only changes they made were (on the self-test); get rid of the Atari logo, and, if you ran the "ALL TESTS" from the self-test menu, when it got to the keyboard test, it typed out the developers name. Atari caught on to this, and changed it to type out "Copyright 1983 Atari". Once the function keys are installed, they will perform exactly like a 1200XL!

Function Key Data

F1 - Moves cursor up one line. Equivalent to Control + "up" arrow keys.

F2 - Moves cursor down one line. Equivalent to Control + "down" arrow keys.

F3 - Moves cursor left one space. Equivalent to Control + "left" arrow keys.

F4 - Moves cursor right one space. Equivalent to Control + "right" arrow keys.

Shift + F1 - Moves cursor to the top left corner of the screen.

Shift + F2 - Moves cursor to the bottom left corner of the screen.

Shift + F3 - Moves cursor to the start of the current line it's on.

Shift + F4 - Moves cursor to the end of the current line it's on.

Control + F1 - De-activates computer keyboard. Press Control + F1 again, to re-activate keyboard. Note: The Reset, Option, Start, and Select keys are unaffected by this, and will act as normal!

Control + F2 - Turns off screen output (speeds up microprocessor up to 30 percent). Press any key (except: Option, Select, Start, Break, Shift, or Control), to turn the screen display back on. Note: Using the Reset key will turn it back on, and also reset the computer!

Control + F3 - De-activates key-click audio output to tv/monitor. Does not affect other program-generated sounds. Press Control + F3 again, to re-activates key-click.

Control + F4 - Toggles the screen display, between graphic characters and international characters. Default is graphic characters. Note: This effects the entire screen, not just the current line you are on.

Note: The Shift + Control + function keys have no default assignments.

Technical Data

For more advanced programmers, the following memory locations are listed, that are related to the function keys. The numbers in parenthesis are in hexadecimal.

96,97 (60,61) FKDEF
The re-definable function keys. FKDEF points (LSB/MSB) to their definition table - eight byte table for keys F1 to F4 then Shift F1 to Shift F4. Each byte to be assigned a value corresponding to an internal code (not ascii). The keys F1 to F4 alone, are values 138-141 (8A-8D). If re-assigning them, do not assign a function key it's own value (don't make F1 = F1), which will create an endless loop. Function keys are ignored with both the shift + control combination. You cannot re-define the control + function key combinations. See the tables at the end of this manual, for re-defining the function keys.

121,122 (79,7A) KEYDEF
Pointer (LSB/MSB) to the keyboard definition table. Initialized to point to 64337 (FB51), where the system's keyboard table resides. You can re-define most of the keyboard by writing a 192 byte table, and POKEing it's address here. The table consists of 3-64 byte portions; lower case, SHIFTed, and CONTROL key combinations. You cannot redefine; Option, Select, Start, Break, Shift, Control, or the Control + Function key combinations. See the tables at the end of this manual.

619 (26D) CHSALT
Pointer for the alternate character set, to be used with a Control + key combination. Control + F4 switches the values between CHSALT and CHBAS at 756 (2F4). It toggles between the "regular" character set, and the international character set. Initialized to 204 (CC), as the next set to display on screen, at the next Control + F4 toggle. All XL/XE computers have these two character sets, being located at memory locations 52224 (CC00) and 57344 (E000). Note: If you have defined your own character set, using Control + F4 will ALWAYS display the international character set, because of the way the O.S. tests these two (CHSALT & CHBAS) locations.

621 (26E) KEYDIS
Keyboard disable location. Control + F1 toggles this between on/off. Under program control, you can also; POKE 621,255 to disable and POKE 621,255 to enable keyboard. However, if you disable the keyboard and want to re-enable it from the keyboard, you must press Reset. Note: The following keys are NOT affected by disabling the keyboard; Reset, Option, Start, Select, and of course Control + F1 (to re-enable keyboard).

731 (2DB) NOCLIK
The keyboard audio click disable register. Control + F3 toggles this between on/off. Does not affect any other programmed sound registers (voices). You can also; POKE 731,A (A is any number 1-255) to disable click, or POKE 731,0 to re-enable the click.

733 (2DD) DMASAV
Saves the DMA value from 559 (22F), when Control + F2 is used, to disable (turn off) Antic, turning it (and screen), to allow the microprocessor to work up to 30 percent faster. This is ideal for intensive "number crunching/calculations". While it is off, you can hit any key to return Antic and the display to normal.

756 (2F4) CHBAS
Character set select; default of 224. Control + F4 toggles between here and CHSALT at 619 (26B), and "swaps" the values of these two registers. You can manually select the international character set by; POKE 756,204. You can POKE 756,224 to get the standard set back.

52224-53247 (CC00-CFFF) CHARSET2
International character set, laid out in the same manner as the standard set listed below.

57344-58367 (E000-E3FF) CHARSET1
Domestic (standard) character set.

Function Key Tables

FKDEF at 96,97 (60,61)

F1 - Lowest memory location of the table
F2 -
F3 -
F4 -
Shift + F1 -
Shift + F2 -
Shift + F3 -
Shift + F4 - Highest memory location of this table.

Once you have decided what functions each combination will perform and built up the table, change vector FKDEF to point to the lowest memory location of your table. This vector is located at memory locations 96 and 97 (Hex. 60 and 61). Location 96 gets the low byte, and 97 gets the high byte. Note: Do NOT re-assign a function key to itself (don't make F1 = F1), which will create an endless loop.

KEYDEF at 121,122 (79,7A)

Byte	Key	*	Byte	Key
00	l	*	32	,
01	j	*	33	space
02	;	*	34	.
03	F1	*	35	n
04	F2	*	36	invalid
05	k	*	37	m
06	+	*	38	/
07	*	*	39	inve.(114)
08	o	*	40	r
09	invalid	*	41	invalid
10	p	*	42	e
11	u	*	43	y
12	RETURN	*	44	TAB
13	i	*	45	t
14	-	*	46	w
15	=	*	47	q
16	v	*	48	9
17	HELP (128)	*	49	invalid
18	c	*	50	0
19	F3	*	51	7
20	F4	*	52	BACKSPACE
21	b	*	53	8
22	x	*	54	<
23	z	*	55	>
24	4	*	56	f
25	invalid	*	57	h
26	3	*	58	d
27	6	*	59	invalid
28	ESC	*	60	CAPS (130)
29	5	*	61	g
30	2	*	62	s
31	1	*	63	a

The next 64 bytes (64-127) are the shifted key combinations. The 64 bytes after that (128-191) are the control key combinations (many graphic). You have to create a table for ALL 192 bytes (0-191), although you only to change a specific few, depending on your requirements. Use the ATASCII values when writing the table. You cannot re-define; Break, Shift, Control, any console keys, or any Control function key assignments.

For more information on the function keys, as well as other usefull information, the following books are highly reccommended:

ATARI XL ADDENDUM
COMPUTES! Mapping the ATARI (revised addittion)
COMPUTES! Third Book of ATARI (has a chapter on the 1200XL)